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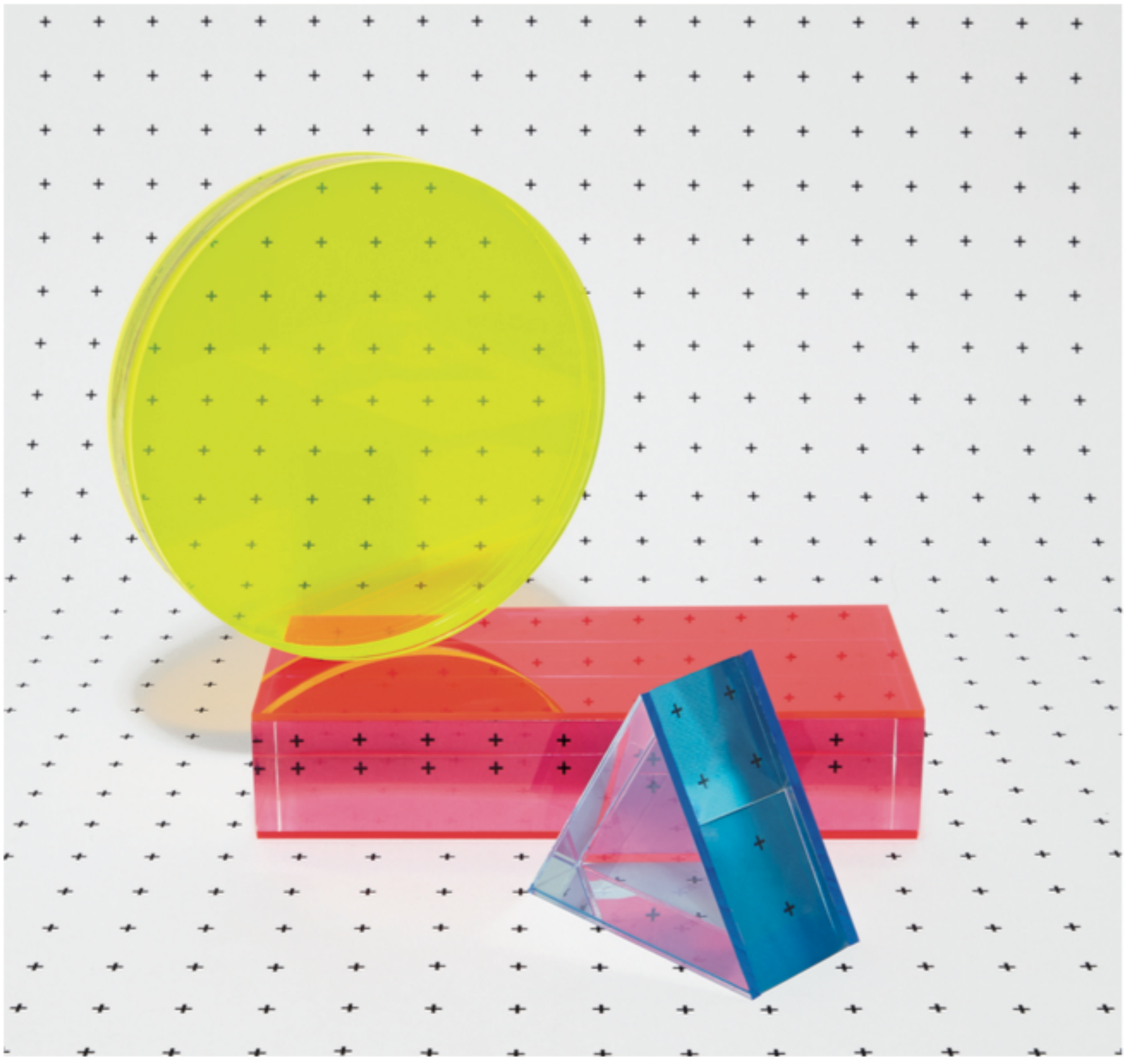

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RAID storage

Kevin Carter tests three of the best storage solutions for image-makers burning the candle at both ends, who demand speed and capacity in one device

Prices for large-capacity hard drives of up to 3-4TB have tumbled in recent years, but even these are too small for all those image-makers building up vast archives of video alongside their stills collections. Most makers do offer some kind of multi-bay system to extend the storage capacity, often using a built-in hardware RAID controller. But there's a common misconception about how effective a RAID system is for backup. It isn't. Even if you've created multiple volumes, if the device is damaged or stolen, then everything's lost.

Depending on the level enabled and the number of disks in the storage device, the notion behind a RAID system is primarily for data protection, but it can be used to maximise performance. With RAID 0, for instance, data is written to all of the disks in the storage device to improve performance, but if one disk fails all the data is lost. The simplest is RAID 1, which offers data protection in the form of a replica between two or more disks. This allows one disk to fail so the user can keep working, but it cuts storage capacity in half and performance is lower.

A further disk failure means total data loss, so a 'cold spare' is required to replace the faulty drive as soon as possible. A good balance between redundancy, performance and capacity is RAID 5. Three or more disks are required for this level, but it allows a single disk failure while offering improved performance. Another benefit of many systems is that the faulty disk can be removed and replaced without switching the system off, further reducing downtime.

Thunder Bay 4 is intended for tech-savy users needing high-end video capabilities.

Drobo

The Drobo is popular with photographers for its accessible pricing and ease of use. It uses a proprietary, software-based RAID system that's similar to RAID 5/6, allowing single/dual-drive failure without data loss, albeit with the expected reduction in capacity. However, in RAID 5 mode, like any other device, failure to replace the faulty drive with another 'cold spare' before a second drive fails would result in total data loss. And, like other RAID-based systems, the Drobo isn't intended as a single backup solution. On the plus side, you don't have to match drives precisely, and replacing it with a larger capacity drive is a good way to start upgrading – and that's difficult with other storage systems. The standard third-generation, four-bay Drobo is USB 3.0 only, and supplied with a bulky power brick. But the latest iteration has built-in battery backup, which provides just enough power to prevent the damage that can occur should the lights go off unexpectedly. It also has a single, quiet oversized fan.

The Drobo software lives up to its reputation for intuitive operation; indeed, no expertise is required. However, besides switching between single and dual redundancy (RAID 5/6), options are somewhat limited.

All this convenience comes with a slight penalty. Although perfectly fine for stills with read/write speeds running at a respectable 220/190MB/s respectively, it's a little low for more demanding HD/2K video. If performance is key, the five-bay 5D offers an optional mSATA SSD to improve read/write performance. Prices start at just under £300 for the standard four-bay enclosure, with 4x 4TB NAS drives supplied for testing, adding around £550. And it comes with a one-year warranty.

www.drobo.com

G-Technology

Another brand that markets storage directly at photographers, G-Technology offers a wide range to suit all budgets and levels of experience. The newly introduced midrange G-RAID Studio series adopts hardware RAID and is one of the first to market with Thunderbolt 2. With just one connected to a pro-spec Mac, this is not likely to make a difference to transfer rates with HDDs, but it could if multiple units are daisy-chained as part of a system delivering data redundancy and backup. Perhaps that's the reason why the Studio systems offer RAID 0, RAID 1 and JBOD.

The former offers excellent read/write performance (albeit without any protection) at around 325MB/s, making it ideal for most 2K workflows and compressed 4K video. When configured to RAID 1, performance drops to around 160MB/s. Two-drive enclosures such as this aren't as versatile or as secure as four-drive units, and it comes with a generic Chinese-made powerbrick. There's no telling how reliable it is, and I would be surprised if the three-year limited warranty extended to it.

With prices starting at £499 for the 6TB, rising to £929 for 12TB, the G-RAID Studio is attractive for its compact dimensions, low weight and very quiet operation.

www.g-technology.com

Thunder Bay 4

Intended for more tech-savvy users with a need for high-end video applications, OWC's Mac-specific Thunder Bay 4 is the latest version of its classic four-bay enclosure, featuring Thunderbolt 2. It's a nicely made unit, with a heavy-duty, anodised aluminium enclosure, complete with two Thunderbolt 2 ports, Kensington security slot and lockable mesh front panel using a key. There's no power brick, which helps reduce clutter under the desk, and there's just one oversized fan in the rear, drawing air from the front.

It is quiet but a little higher-pitched than the G-RAID Studio,

and perhaps a little more noticeable. OWC supplies 'burned-in' drives (in this instance 4x 3TB 3.5-inch Toshiba DT01ACA series), up to 24TB, or you can purchase the enclosure by itself for $449.

The unit supplied was pre-installed with Soft RAID and configured as RAID 5; however, the software needs reinstalling from the maker's site for the latest drivers and registration before the serial number is supplied. After that the software offers the usual RAID configurations (including JBOD). In RAID 5 mode, the performance outshone the other models, with the Thunder Bay clocking around 540/530MB/s read/write speeds, which is suitable for most 2K/HD video.

Restrictions on testing the software in demo mode meant I couldn't test other configurations, but at around £800 for 16TB, rising to £1330 for 24TB (£2000 for 4TB SSDs) plus VAT, the Thunder Bay 4 is the most tempting of the three units on test if you're mixing video with stills. A solid three-year warranty sweetens the deal. *BJP*

www.macsales.com